

Thoughts on Calorimeter Electronics Testing and Assembly

E.J. Mannel
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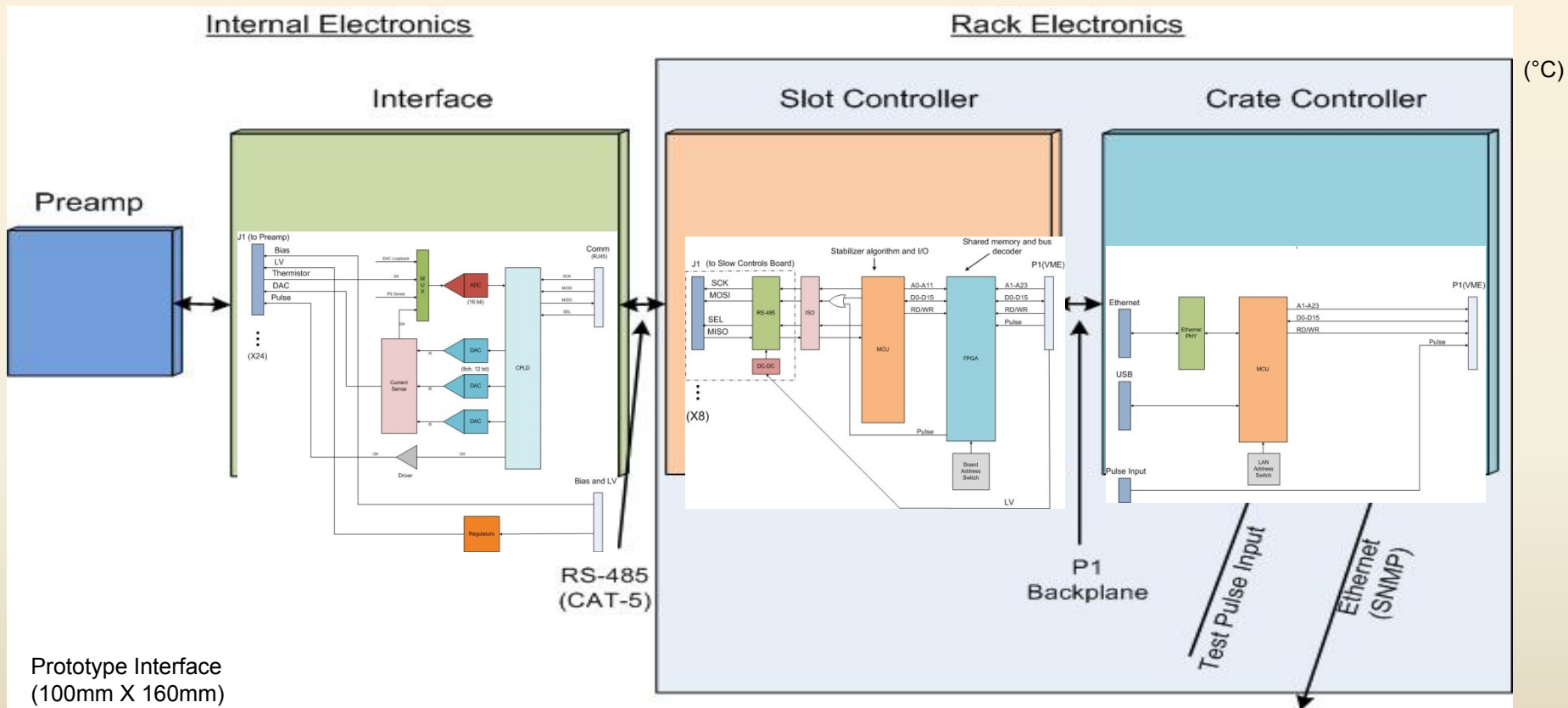
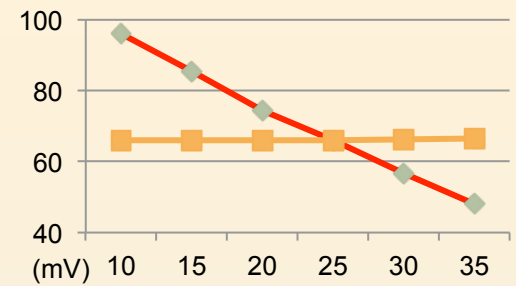
Analog Front End

- SiPMs
 - ~16K devices are needed
 - Hamamatsue Data
 - Database
 - Logging
 - Sorting
 - Additional testing on limited sample?
- Preamplifiers
 - 3K Devices
 - Initial Q/A test:
 - Power Up (smoke test)
 - Gain measurement (test pulse)
 - Burn in testing

Interface/Control

- Interface: 128 boards:
 - “On” Detector
 - Current and Temperature measurements
 - CPLD for temperature/current compensation control
 - Low voltage/Bias distribution
 - LED Driver
- Slot Controller: 128 boards
 - “Near” Detector
 - High level stabilization corrections
- Crate Controller: 8 Boards
 - Interface to slow control

Slow Controls



Slow Control Testing

- Initial:
 - Visual inspection
 - Smoke test
 - Initial power up tests:
 - CPLD/MCU/FPGA programming
 - ADC/DAC functionality
- System Test
 - Connect up a ½ sector
 - Communications

Test Plans

- Very “High” Level at this point
 - Good place for a group to step in and take the lead
 - Need to identify specific tests for all board
 - Test equipment needs to be identified
 - Need to design and implement system for tracking
 - Gains
 - Temperature
 -
- A lot of this will develop as the design goes forward and the design moves from reference to final

Assembly Plans

- Plan A: Turnkey
 - We provide all design files
 - Single vendor contracted to procure all components, board fab and assembly
 - Delivery is fully assembled board
 - May be different vendors for different boards
- Plan B: DYI
 - We provide all design files
 - Submit orders for components, build assembly kits
 - Order PC boards from vendor
 - Contract assembly of boards
- Pros and Cons to both approaches⁷⁷
- We still need to do Q/A testing on delivered boards